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Theoretical Computer Science

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Preface

This very special issue of *Theoretical Computer Science* is published to celebrate the 80th birthday of *Andrzej Ehrenfeucht*, a scientist of world-wide fame and many seminal results. He enjoys an exceptional admiration and respect in the international scientific community. This was confirmed again when we started our editorial work. When we asked for contributions, the response was enthusiastic. Many authors emphasized the high requirements for the scientific level of the contributions in such a birthday issue. We take this opportunity to thank the contributors and referees for their dedicated, careful and timely work.

It is impossible to give a brief description about the work and personality of such an icon and personification of science as Andrzej Ehrenfeucht undoubtedly is. In this Preface we restrict ourselves to a few scattered remarks.

Indeed, Andrzej can be called a personification of science. Anyone who knows him is aware of that he lives for and by science. His results are deep. He has opened new vistas for science. Whatever he works on, he does it in his own way, always leaving a visible stamp of originality in his contributions. Andrzej has a unique ability for discovering elegant structures in problems he works on.

Andrzej's work cuts through important areas of theoretical computer science and related fields of mathematics. His name is visible in many contexts and notions such as *Ehrenfeucht–Fraïssé Games* and *Ehrenfeucht Conjecture*. The Ehrenfeucht–Fraïssé Games form a bridge between game theory and logic and have been of crucial importance in diverse situations. The originally surprising Ehrenfeucht Conjecture initiated a whole stream of work in language theory.

Andrzej is a truly interdisciplinary scientist. He wants to bridge his prime areas of mathematics and theoretical computer science with other disciplines. They include linguistics and biology. The following observation is important. When Andrzej wants to bridge something with a topic X in another discipline, say biology, he first wants to get a genuine understanding of principles underlying X. What biologists say is not enough, Andrzej wants to know the reasons behind their opinion.

The title of this special issue, "Formal and Natural Computing", reflects the two main streams of Andrzej's research: one within mathematics and theoretical computer science and the other bridging mathematics and theoretical computer science with biology.

Andrzej is a mathematician and theoretical computer scientist with a deep and broad knowledge of many areas of both. However, he is also a Renaissance Man: *Nihil humanum a me alienum puto*. Apart from physics, astronomy, linguistics and biology, he is also knowledgeable in, among others, psychology and geology and has a deep interest in, e.g., insects.

His surprisingly deep and broad knowledge of so many disciplines is related to his intrinsic desire to acquire information and know. He "reads all the time". Asking Andrzej a question can be a very enlightening experience: one often gets a whole tutorial on the topic.

The project "Breaking Away from Math Book", in cooperation with his life partner Pat Baggett, is an example of his originality and universal interests. This pioneering project aims at raising prime school students' interest and confidence in mathematics.

In the years of his youth Andrzej was an accomplished sportsman: a good skier and an outstanding mountain climber. A ridge in Yosemite National Park is named after him.

But at the age of 80 Andrzej is still very active, creative and original thinker. For the years to come, we wish him good health and a continuing flow of deep results.

Leiden and Turku, July 2012

Grzegorz Rozenberg
Arto Salomaa

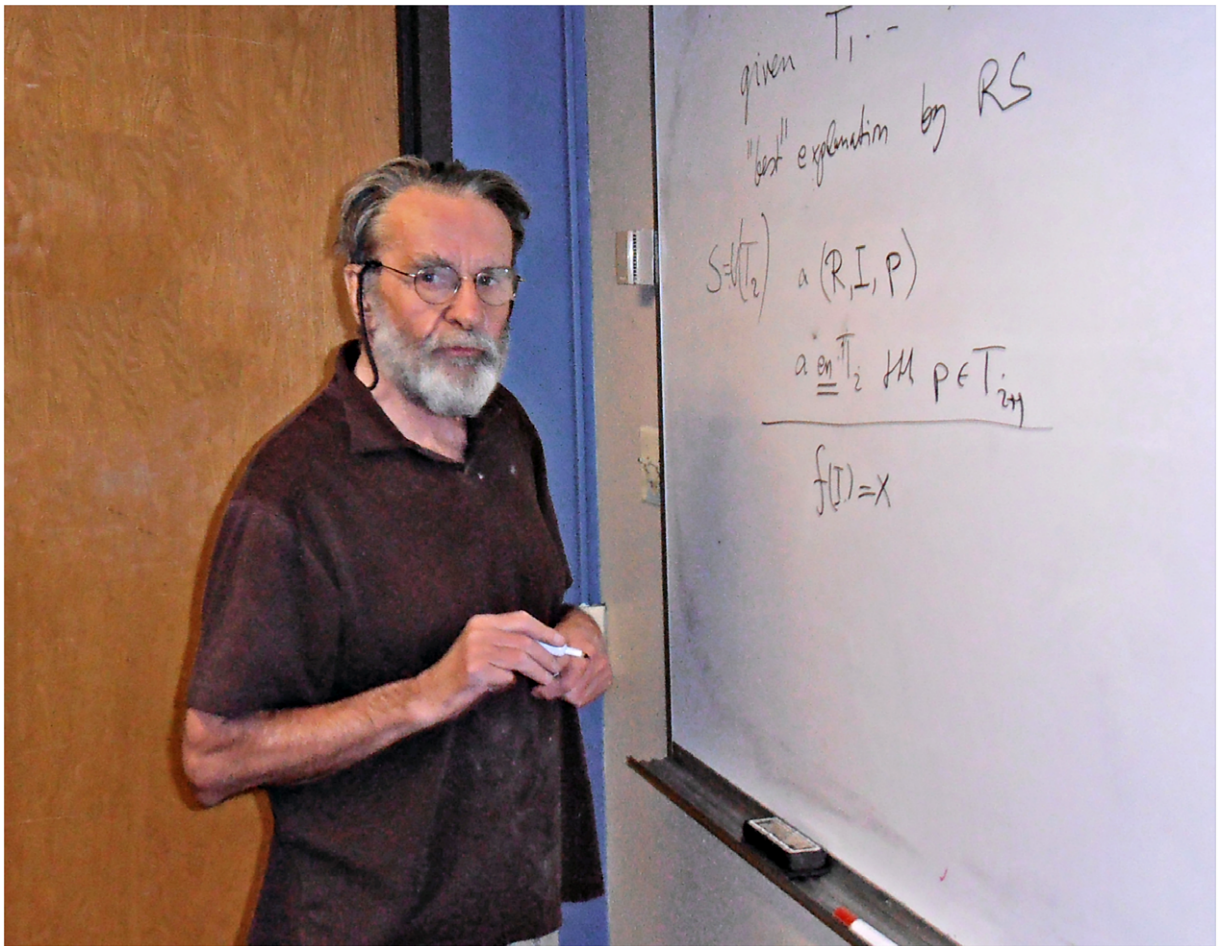
I want to still add a few words, since my relationship with Andrzej is very special. Next year it will be fifty years since the beginning of our cooperation. It all started with Andrzej being my mentor and adviser. We quickly became good friends and then brothers by choice.

Andrzej changed my love for electronics and hardware into love for mathematics, mathematical logic and theoretical computer science. We worked on hundreds of papers. We still work intensely on many topics.

We never worked on a paper because the topic was fashionable. The topic had to be interesting and intellectually exciting for both of us.

Andrzej is an ideal brother: never intrusive but always supportive and enlightening. Moreover, he loves magic and is an ideal spectator for magic shows. I have performed more magic for him than for anyone else!

Grzegorz Rozenberg



Professor Andrzej Ehrenfeucht